

We claim:

1. A process for isolating soluble dietary fiber comprising beta glucan from grain, said process comprising the steps of  
forming an aqueous slurry of a comminuted grain material, said slurry  
5 comprising water insoluble components of the grain material suspended in an aqueous solution comprising water soluble dietary fiber and protein components of the grain material;  
acidifying the aqueous slurry;  
adding an enzyme preparation comprising an enzyme selected from the  
10 group consisting of cellulase, hemicellulase, xylanase and pentosanase in an amount effective to hydrolyze at least a portion of the soluble components and thereby reduce solution viscosity;  
separating the water insoluble components from the aqueous solution;  
heating the aqueous solution to denature at least a portion of the  
15 soluble protein components to form a precipitate and a beta glucan product solution containing beta glucan and non beta glucan components; and  
removing at least a portion of the water from the resulting product solution.
2. The process of claim 1 wherein the step of forming the slurry is  
20 accomplished using a ratio of grain material: water of about 1:4 to about 1:8.
3. The process of claim 1 wherein the step of forming the slurry is accomplished using a ratio of grain material: water of about 1:5 to about 1:6.
4. The process of claim 1 wherein the aqueous slurry of grain material is also subjected to high shear in a homogenizer.
- 25 5. The process of claim 1 further comprising the step of separating the denatured protein-containing precipitate from the heated aqueous solution
6. The process of claim 1 wherein the grain material is derived from barley.
7. The process of claim 1 wherein the grain material is derived from oats.
- 30 8. The process of claim 1 wherein after the viscosity reduction step the pH of the slurry is adjusted to about 4.2 before separating the water insolubles from the aqueous solution.
9. The process of claim 1 further comprising the step of contacting the beta glucan product solution with an enzyme capable of digesting at least a portion of  
35 the non beta glucan components.

10. The process of claim 9 further comprising the step of inoculating the beta glucan product solution with yeast and maintaining the resulting yeast suspension under conditions conducive to the assimilation of at least a portion of the products of enzyme digestion of the non beta glucan components.

5 11. A process for isolating soluble fiber comprising beta glucan from grain, said process comprising the steps of

forming an aqueous slurry of a comminuted grain material, said slurry comprising water insoluble components of the grain material suspended in an aqueous solution comprising water soluble fiber and protein components of the grain material;

10 acidifying the aqueous slurry to a pH of about 3.8 to about 5.5;

adding an enzyme preparation in an amount effective to hydrolyze at least a portion of the soluble components and thereby reduce solution viscosity;

separating the water insoluble components from the aqueous solution;

15 heating the aqueous solution to denature at least a portion of the soluble protein components;

separating denatured protein components from the aqueous solution to form a beta glucan product solution containing beta glucan and non beta glucan components; and

removing at least a portion of the water from the product solution.

20 12. The process of claim 11 wherein the step of forming the slurry is accomplished using a ratio of grain material: water of about 1:4 to about 1:8.

13. The process of claim 11 wherein the grain material is derived from barley.

25 14. The process of claim 11 wherein the grain material is derived from oats.

15. The process of claim 11 further comprising the step of contacting the beta glucan product solution with an enzyme capable of digesting at least a portion of the non beta glucan components.

30 16. The process of claim 15 further comprising the step of inoculating the beta glucan product solution with yeast and maintaining the resulting yeast suspension under conditions conducive to the assimilation of at least a portion of the products of enzyme digestion of the non beta glucan components.

17. A product in powder form prepared in accordance with claim 1.

18. A product in powder form prepared in accordance with claim 6.

35 19. A product in powder form prepared in accordance with claim 7.

20. A process for isolating soluble dietary fiber comprising beta glucan from grain, said process comprising the steps of

forming an aqueous slurry of a comminuted grain material, said slurry comprising water insoluble components of the grain material suspended in an aqueous solution comprising water soluble dietary fiber and protein components of the grain material;

acidifying the aqueous slurry;

adding to the slurry an enzyme capable of hydrolyzing at least a portion of the soluble polysaccharide components and reducing the viscosity of the slurry;

adjusting the pH of the slurry to about 4.2 and separating the water insoluble components from the aqueous solution;

heating the aqueous solution to denature at least a portion of the soluble protein components;

separating denatured protein components from the aqueous solution to form a beta glucan product solution containing beta glucan and non beta glucan components; and

removing at least a portion of the water from the product solution.

21. The process of claim 20 wherein the grain material is derived from barley.

22. The process of claim 20 wherein the grain material is derived from oat.

23. The process of claim 20 further comprising the step of contacting the beta glucan product solution with an enzyme capable of digesting at least a portion of the non beta glucan components.

24. The process of claim 23 further comprising the step of inoculating the beta glucan product solution with yeast and maintaining the resulting yeast suspension under conditions conducive to the assimilation of at least a portion of the products of enzyme digestion of the non beta glucan components.

25. A water soluble dietary fiber product prepared in accordance with the process of claim 20.

26. A food ingredient prepared in accordance with claim 1.

27. A food supplement prepared in accordance with claim 1.

28. A food additive prepared in accordance with claim 1.

29. A food product having as a component beta glucan extracted in accordance with claim 1.

30. A food intermediate having as a component beta glucan extracted in accordance with claim 1.